

ABSTRACT OF THE DISCLOSURE

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AIS* ↘ Disclosed is a method for fabricating capacitors for

semiconductor devices. This method includes the steps of

5 forming a lower electrode on an understructure of a

semiconductor substrate, depositing an amorphous TaON thin

film over the lower electrode, annealing the deposited

amorphous TaON thin film in an NH_3 atmosphere, and repeating

the deposition of the amorphous TaON thin film and the

10 annealing of the deposited amorphous TaON thin film at least

one time, thereby forming a TaON dielectric film having a

multi-layer structure, and forming an upper electrode over

the TaON dielectric film. The TaON dielectric film having a

multi-layer structure exhibits a dielectric constant that is

15 superior to those of conventional dielectric films.

Accordingly, the TaON dielectric film of the invention can

be used for capacitors in next generation semiconductor

memory devices of 256 M grade and higher.

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